

**§ 7.102 Exhaust gas cooling efficiency test.**

(a) *Test procedures.* (1) Follow the procedures specified in § 7.101(a).

(2) Install a temperature measuring device to measure the exhaust gas temperature at discharge from the exhaust conditioner. The temperature measuring device shall be accurate to  $\pm 4$  °F ( $\pm 2$  °C).

(3) Determine the exhaust gas temperature at discharge from the exhaust conditioner before the exhaust gas is diluted with air.

(b) *Acceptable performance.* (1) The exhaust gas temperature at discharge from a wet exhaust conditioner before the exhaust gas is diluted with air shall not exceed 170 °F (76 °C).

(2) The exhaust gas temperature at discharge from a dry exhaust conditioner before the gas is diluted with air shall not exceed 302 °F (150 °C).

**§ 7.103 Safety system control test.**

(a) *Test procedures.* (1) Prior to testing, perform the tasks specified in § 7.101(a)(1) and install sufficient temperature measuring devices to measure the highest coolant temperature and exhaust gas temperature at discharge from the exhaust conditioner. The temperature measuring devices shall be accurate to  $\pm 4$  °F ( $\pm 2$  °C).

(2) Determine the effectiveness of the coolant system temperature shutdown sensors which will automatically activate the safety shutdown system and stop the engine before the coolant temperature in the cooling jackets exceeds manufacturer's specifications or 212 °F (100 °C), whichever is lower, by operating the engine and causing the coolant in the cooling jackets to exceed the specified temperature.

(3) For systems using a dry exhaust gas conditioner, determine the effectiveness of the temperature sensor in the exhaust gas stream which will automatically activate the safety shutdown system and stop the engine before the cooled exhaust gas temperature exceeds 302 °F (150 °C), by operating the engine and causing the cooled exhaust gas to exceed the specified temperature.

(4) For systems using a wet exhaust conditioner, determine the effectiveness of the temperature sensor in the

exhaust gas stream which will automatically activate the safety shutdown system and stop the engine before the cooled exhaust gas temperature exceeds 185 °F (85 °C), with the engine operating at a high idle speed condition. Temporarily disable the reserve water supply, if applicable, and any safety shutdown system control that might interfere with the evaluation of the operation of the exhaust gas temperature sensor. Prior to testing, set the water level in the wet exhaust conditioner to a level just above the minimum allowable low water level. Run the engine until the exhaust gas temperature sensor activates the safety shutdown system and stops the engine.

(5) For systems using a wet exhaust conditioner as an exhaust flame arrester, determine the effectiveness of the low water sensor which will automatically activate the safety shutdown system and stop the engine at or above the minimum allowable low water level established from results of the explosion tests in § 7.100 with the engine operating at a high idle speed condition. Temporarily disable the reserve water supply, if applicable, and any safety shutdown system control that might interfere with the evaluation of the operation of the low water sensor. Prior to testing, set the water level in the wet exhaust conditioner to a level just above the minimum allowable low water level. Run the engine until the low water sensor activates the safety shutdown system and stops the engine. Measure the low water level. Attempt to restart the engine.

(6) Determine the effectiveness of the device in the intake system which is designed to shut off the air supply and stop the engine for emergency purposes with the engine operating at both a high idle speed condition and a low idle speed condition. Run the engine and activate the emergency intake air shutoff device.

(7) Determine the total air inlet restriction of the complete intake system, including the air cleaner, as measured between the intake flame arrester and the engine head with the engine operating at maximum air flow.

(8) Determine the total exhaust backpressure with the engine operating at rated horsepower as specified in